For example, power profiling resistors may be placed on individual emitters or detectors or at the decoders rather than at the Darlington transistor arrays without departing from the spirit and scope of the present invention. Further, the program could be utilized in a different sequence without departing from the spirit and scope of the present invention. Also, other data streams may be utilized such as parallel output using additional I/O lines which are available or different types of serial data streams. Additionally, different types of arrays other than Darlington transistors may be utilized while different types of decoders may be used while other types of detectors such as photodiodes may be used. It is also to be remembered that the firing or detection order of the emitters and detectors may be changed to any order desired. The present device may also be used with or without a display or a CRT or with a flat panel display.

Accordingly, the present invention produces a device which accommodates for changing ambient light levels, emitter and/or detector degradation and which has few components.

I claim:

1. A touch input device for detecting at least one passive stylus, comprising:

an opto-matrix frame having a plurality of optical emitters and oppositely positioned optical detectors disposed in the opto-matrix frame and having an optically transparent bezel adjacent thereto, characterized in that:

the plurality of optical emitters are electrically interconnected in a matrix such that the anodes form one side of the matrix and the cathodes form the other side of said matrix;

the plurality of optical detectors are electrically interconnected in a matrix such that the anodes form one side of the matrix and the cathodes form the other side of said matrix corresponding emitters and detectors forming emitter-detector pairs;

a first driving device is connected to the optical emitters for selectively energizing at least one emitter at at time;

a first decoding or selection device is connected to the optical detectors for selectively energizing at least one detector at a time;

at least one emitter-detector pair disposed adjacent corners of the optically transparent bezel being connected to means for decreasing the output thereof relative to the remainder of the emitters and detectors thereby minimizing the effects of reflected radiant energy; and

a microcomputer interconnected to the first driving device and the first decoding or selection device so as to sequentially energize the first and second driving devices, wherein the microcomputer produces a data output signal which corresponds to the presence or absence of the passive styli.

2. A device according to claim 1 wherein the optical emitters are composed of light emitting diodes and the optical detectors are composed of phototransistors.

3. A device according to claim 1 wherein said optical emitters and optical detectors are infrared emitters and infrared detectors respectively.

4. A device according to claim 1 wherein the first driving device comprises Darlington transistor arrays interconnected with the anodes and cathodes of the emitters.

5. A device according to claim 1 wherein the first decoding or selection device is a BCD-to-decimal converter interconnected with the anodes and cathodes of the detectors.

6. A touch input device for detecting the presence of a passive stylus disposed within a display area comprising:

a plurality of substantially identical non-collimated optical emitters disposed along at least one edge of the display area;

a plurality of substantially identical optical detectors disposed along an opposite edge of the display area, corresponding oppositely aligned emitters and detectors forming emitter-detector pairs each detector generating an output in response to an incident optical signal; and

profiling means for decreasing the output, relative to other emitter-detector pairs, of each emitter-detector pair for which a significantly greater amount of reflected light is incident upon the associated detector than for other emitter-detector pairs, whereby the presence of a passive stylus between each such emitter-detector pair is detected despite the relatively greater amount of reflected light incident upon the associated detector.

7. A device according to claim 6 wherein the profiling means comprises means for reducing the optical intensity of the emitter associated with each such emitter-detector pair.

8. A device according to claim 6 wherein the profiling means comprises means for reducing the sensitivity of the detector associated with each such emitter-detector pair.

9. A device according to claim 6 wherein the emitters are disposed along two adjacent sides of a rectangular display area and the detectors are disposed along the two opposite sides of the rectangular display area.

10. A device according to claim 9 wherein the output of emitter-detector pairs adjacent the corners of the rectangular field is decreased relative to emitter-detector pairs spaced from the corners.

11. A device according to claim 6 wherein the profiling means comprises a current limiting resistance for reducing current flowing through the associated emitter to decrease the brightness of the optical emitter.

12. A device according to claim 11 wherein the output of a plurality of emitter-detector pairs of differentially reduced, different current limiting resistances comprising means for differentially reducing the current flowing through associated emitters to vary the brightness of the emitters.

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